

# SEWER AND WATER DETAILS

PIPE DIA. IN.	BLOCK DIMENSIONS IN.	CONC. VOLUME FT <sup>3</sup>
4	NONE REQUIRED	
6	12 12 12 2.0	
8	16 16 16 4.8	
10	20 20 20 9.3	
12	24 24 24 16.0	
16	32 32 32 38.0	

PIPE DIA. IN.	TIMBER BEAMS SIZE	CLEARANCE D IN.
4	NONE REQUIRED	
6	1 6x6 34 18	
8	1 8x8 42 20	
10	1 10x10 48 22	
12	1 12x12 56 24	
16	2 10x10 72 30	

**NOTES**

- 2500 PSI CONCRETE TO BE USED.
- BLOCK DIMENSIONS ARE MINIMUM AND ARE BASED UPON SOIL BEARING PRESSURE OF 2000 PSF AND WATER PRESSURE OF 150 PSI. WHERE SOIL BEARING IS LESS OR WATER PRESSURE IS GREATER, A SPECIAL DESIGN WILL BE REQUIRED.
- TIMBER TO BE DOUGLAS FIR CONSTRUCTION GRADE OR BETTER. HORIZONTAL SHEAR 120 PSI.

**THRUST BLOCKING AT DEAD ENDS PLANNED FOR FUTURE EXTENSION**  
NTS

**SEPERATION OF WATER MAIN AND SEWER - PARALLEL INSTALLATION**  
NTS

TO EXTENT FEASIBLE, JOINTS IN WATER MAIN SHALL BE KEPT AS FAR AS POSSIBLE FROM SEWER.

**NOTE**  
WHERE A 10' MINIMUM HORIZONTAL SEPERATION CANNOT BE OBTAINED DUE TO FIELD CONDITIONS, THE VERTICAL CLEAR DISTANCE SHALL BE A MINIMUM OF 18". HOWEVER, AN EXCEPTION TO THE 10' MINIMUM HORIZONTAL SEPERATION REQUIRES SEPERATE APPROVAL OF THE WESTCHESTER COUNTY HEALTH DEPARTMENT.

**CONCRETE ANCHOR DETAIL**  
NTS

**NOTE**  
IF LEDGE IS ENCOUNTERED, ANCHOR DETAIL CAN BE REPLACED BY INSERTING NO.6 BARS DOWELED INTO LEDGE ROCK FASTENED BY NON-SHRINK EPOXY GROUT.

**SEPERATION OF WATER MAIN AND SEWER CROSSINGS**  
NTS

UNUSUAL CONDITIONS

WATER MAINS PASSING UNDER SEWERS SHALL HAVE A VERTICAL CLEARANCE OF 18" MINIMUM BETWEEN THE SEWER AND WATER MAIN AND THE SEWER SHALL BE SUPPORTED AS DIRECTED BY THE ENGINEER.

TO THE EXTENT FEASIBLE, JOINTS IN THE WATER MAIN SHALL BE KEPT AS FAR AS POSSIBLE FROM THE SEWER.

WHERE AN 18" SEPERATION CANNOT BE OBTAINED DUE TO FIELD CONDITIONS, SEPERATE APPROVAL OF THE WESTCHESTER COUNTY HEALTH DEPARTMENT SHALL BE REQUIRED.

**YARD HYDRANT - POST TYPE**  
NTS

**TRENCH PAYMENT LIMITS**  
NTS

**NOTES**

- SELECT FILL SHALL BE MATERIAL FREE FROM Cinders, ASHES, VEGETABLE OR ORGANIC MATTER, BOLDERS, ROCKS AND STONES, ASPHALT, OR ANY OTHER MATERIAL DEEMED UNSUITABLE BY THE ENGINEER. STONES NOT GREATER THAN 8 INCHES IN THEIR GREATEST DIMENSION MAY BE USED, UNLESS OTHERWISE SPECIFIED, BUT MAY NOT COMPRISE MORE THAN 1% BY VOLUME OF THE BACKFILL MATERIAL. SEPERATE APPROVAL OF THE WESTCHESTER COUNTY HEALTH DEPARTMENT SHALL BE REQUIRED.
- SAND BACKFILL TO 1 FOOT ABOVE TOP OF PIPE. IN A WET ROCK TRENCH, GRAVEL MAY BE SPECIFIED BY THE ENGINEER IN LIEU OF SAND.

**WATER SERVICE LINE**  
NTS

- WATER WORKS SUPPLY CORPORATION, SERVICE TUBING, CURB STOP AND BOX.
- CONTRACTOR PROVIDES ALL EXCAVATION, LABOR, BACKFILL AND RESTORATION.
- THE CURB BOX SHALL BE LOCATED BETWEEN THE EDGE OF PAVEMENT, OR CURB WHERE CURBS ARE IN PLACE, AND THE PROPERTY LINE. WHERE SIDEWALKS EXIST OR ARE TO BE BUILT, THE CURB STOP SHALL BE LOCATED NO FURTHER THAN THREE (3) FEET FROM THE EDGE OF PAVEMENT, OR CURB WHERE CURBS ARE IN PLACE.

**ENCASEMENT DETAIL**  
NTS

ENCASE WATER MAIN IN 50 PSI CONCRETE IN AREAS WHERE VERTICAL CLEARANCE IS LESS THAN 18" AND HORIZONTAL CLEARANCE IS LESS THAN 10".

**THRUST BLOCKING FOR SAG VERTICAL BENDS**  
NTS

PIPE DIA. IN.	BEND S IN.	T IN.	U IN.	CONC. VOLUME FT <sup>3</sup>
16	90	48	48	64.0
	45	48	34	20
	22.5	42	20	18
12	45	36	36	27.0
10	90	36	36	36
	45	36	24	18
	22.5	28	18	12
8	45	30	30	30
6	90	24	24	24
	45	24	18	12
	22.5	18	12	12

**NOTES**

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- BLOCK DIMENSIONS ARE MINIMUM AND ARE BASED UPON SOIL BEARING PRESSURE OF 2000 PSF AND WATER PRESSURE OF 150 PSI. WHERE SOIL BEARING IS LESS OR WATER PRESSURE IS GREATER, A SPECIAL DESIGN WILL BE REQUIRED.
- BEND TO BE SET AGAINST UNDISTURBED EARTH. BACKFILL TO BE FIRMLY TAMPED, OR BLOCK TO BE FURNISHED AS DIRECTED BY THE ENGINEER.

**THRUST BLOCKING FOR CAPS, PLUGS AND VALVES**  
NTS

PIPE DIA. IN.	BLOCK DIMENSIONS IN.	CONC. VOLUME FT <sup>3</sup>
4	NONE REQUIRED	
6	12 12 12 2.0	
8	16 16 16 4.8	
10	20 20 20 9.3	
12	24 24 24 16.0	
16	32 32 32 38.0	

**NOTES**

- 2500 PSI CONCRETE TO BE USED.
- BLOCK DIMENSIONS ARE MINIMUM AND ARE BASED UPON SOIL BEARING PRESSURE OF 2000 PSF AND WATER PRESSURE OF 150 PSI. WHERE SOIL BEARING IS LESS OR WATER PRESSURE IS GREATER, A SPECIAL DESIGN WILL BE REQUIRED.
- FOR USE ON ABANDONED LINES AND DEAD ENDS WHERE NO EXTENSION IS CONTINGUATED.

**THRUST BLOCKING FOR TEES**  
NTS

BRANCH SIZE IN.	BLOCK DIMENSIONS IN.	CONC. VOLUME FT <sup>3</sup>
6	18 16 12 4.8	
8	30 18 12 4.0	
10	42 20 12 6.3	
12	50 24 16 11.3	
16	60 36 24 30.0	

**NOTES**

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- BLOCK DIMENSIONS ARE MINIMUM AND ARE BASED UPON SOIL BEARING PRESSURE OF 2000 PSF AND WATER PRESSURE OF 150 PSI. WHERE SOIL BEARING IS LESS OR WATER PRESSURE IS GREATER, A SPECIAL DESIGN WILL BE REQUIRED.

**THRUST BLOCKING FOR HORIZONTAL BENDS**  
NTS

PIPE DIA. IN.	BEND S IN.	T IN.	U IN.	CONC. VOLUME FT <sup>3</sup>
16	90	80	32	39.5
	45	48	28	30
	22.5	30	22	28
12	90	56	26	20
	45	38	22	10
	22.5	20	20	12
10	90	48	22	16
	45	28	20	12
	22.5	18	18	12
8	90	34	20	12
	45	20	18	12
	22.5	14	14	12
6	90	24	16	12
	45	14	14	12
	22.5	12	12	12

**NOTES**

- 2500 PSI CONCRETE TO BE USED.
- BLOCK DIMENSIONS ARE MINIMUM AND ARE BASED UPON SOIL BEARING PRESSURE OF 2000 PSF AND WATER PRESSURE OF 150 PSI. WHERE SOIL BEARING IS LESS OR WATER PRESSURE IS GREATER, A SPECIAL DESIGN WILL BE REQUIRED.

**ANCHORAGE FOR CREST VERTICAL BENDS**  
NTS

POUR CONCRETE AGAINST UNDISTURBED EARTH.

DOUBLE ACTING STEEL WEDGES.

RETRAINING BANDS SEE NOTE 4.

PIPE DIA. IN.	BEND P IN.	Q IN.	R IN.	CONC. VOLUME FT <sup>3</sup>
16	45	72	60	56
	22.5	60	48	44
	11.25	48	38	36
12	45	48	48	3.0
	42	42	40	1.5
	34	34	34	0.84
10	45	42	42	2.0
	36	36	36	1.0
	30	30	30	0.58
8	48	36	36	1.3
	32	32	32	0.71
	26	26	26	0.38
6	42	30	28	0.76
	26	26	26	0.38
	24	24	24	0.30

**NOTES**

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- BLOCK DIMENSIONS ARE MINIMUM AND ARE BASED UPON SOIL BEARING PRESSURE OF 2000 PSF AND WATER PRESSURE OF 150 PSI. WHERE SOIL BEARING IS LESS OR WATER PRESSURE IS GREATER, A SPECIAL DESIGN WILL BE REQUIRED.
- WHERE 90° CREST VERTICAL BEND IS REQUIRED APPROX. MUST BE OBTAINED FROM THE ENGINEER. A SPECIAL DESIGN WILL BE REQUIRED. 4" #4 REINFORCING ROD REQUIRED FOR 12" BEND, 1" #16 REINFORCING ROD REQUIRED FOR ALL OTHER BENDS. EXPOSED BARS TO BE PROVIDED WITH PROTECTIVE COATING.

**SEWER MANHOLE DETAIL**  
NTS

FRAME AND COVER SHALL BE CAST IRON TYPE 1230 MANUFACTURED BY CAMPBELL FOUNDRY. THE COVER SHALL BE ENTITLED "SANITARY SEWER".

COMMON BRICK LEVELING COURSE, AS REQUIRED (4" MAX.).

STANDARD POLYPROPYLENE STEPS 6" STEPS 12" O.C. SEE DETAIL THIS SHEET.

PRECAST CONE.

PROVIDE CEMENT PARGE WATERPROOFING AND BUTYL RUBBER SEAL AT SECTIONS.

LENGTH OF PRECAST RISER SECTION BETWEEN BASE AND CONE VARIES, REFER TO PROFILE ELEVATIONS TO DETERMINE LENGTH.

ALL MANHOLES SHALL EXTERIOR ASPHALT COATING.

PRECAST CONCRETE MANHOLE AS MANUFACTURED BY FORT MILLER CO. SCHULERVILLE, NEW YORK OR APPROVED EQUAL.

48" DIA.

5" WALLS.

PROVIDE "KOR-N-SEAL" RUBBER BOOT FLEXIBLE CONNECTOR WITH PIPE CLAMP AT ALL PIPE CONNECTIONS.

FILLED CONCRETE INVERT TO BE FIELD FORMED 1/2 DIA. PIPE.

6" COMPACTED 1/2" CRUSHED STONE BEDDING.

**SADDLE CONNECTION TO PVC PIPE**  
NTS

STAINLESS STEEL BOLTS & NUTS.

NECESSARY BEND.

6" PVC SERVICE CONNECTION (MIN. SLOPE 2.00%).

RUBBER GASKET JOINT.

NEOPRENE GASKET.

CONNECTION TO BE MADE IN THIS QUADRANT AS DIRECTED UNLESS OTHERWISE DIRECTED.

SADDLE CONNECTION SHALL BE SEAL TITE SADDLE MODEL LH 6" GASKETED BELL TO ACCEPT SDR 35 AS MANUFACTURED BY THE GENERAL ENGINEERING CO. FREDRICK, MD.

ANY DETAIL NOT SPECIFICALLY SHOWN ON THE SITE PLAN WILL BE UTILIZED WHEN FIELD CONDITIONS WARRANT AS DIRECTED BY THE ENVIRONMENTAL MONITOR.

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.

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SEWER & WATER DETAILS  
HIGHGATE - WOODLANDS AT NORTH SALEM  
REED ROAD AND HARDSCRABBLE ROAD  
TOWN OF NORTH SALEM  
COUNTY OF WESTCHESTER  
STATE OF NEW YORK

DRAWN BY: PL	CHECKED BY: DC
SCALE: AS NOTED	
DATE: NOVEMBER 1, 2005	
JOB NUMBER	SHEET
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REV.	DESCRIPTION	BY	DATE
1	NYC DEP COMMENTS	PL	July 24, 2006
2	TOWN REVIEW	PL	Nov 15, 2006
3	TOWN REVIEW	PL	Sept 2, 2008
4	TOWN REVIEW	DPG	April 16, 2010
5	TOWN PLANNER MEMO (7/8/2010) & TOWN ENGINEER MEMO (7/9/2010)	DPG	December 29, 2010
6	TOWN PLANNER MEMO (9/9/2011) & TOWN ENGINEER MEMO (9/3/2011)	DPG	February 24, 2012
7	COMPLETENESS SUBMISSION	DPG	July 31, 2012
8	ACCEPTED DRAWING SET	DPG	September 12, 2012
9	RESOLUTION 139-13	PJG	April 22, 2013